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Publication Brief for Resource Managers

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Prescription Burning in Chaparral Shrublands

Recent USGS studies have demonstrated that fire suppression has not effectively excluded fire from chaparral and coastal sage scrub landscapes and catastrophic wildfires are not the result of unnatural fuel accumulation. In light of these findings, there is a need to reevaluate prescribed burning and the appropriate fire management policy for shrubland-dominated landscapes, which is the focus of an article in the March issue of *Environmental Management* by USGS scientist Dr. Jon E. Keeley. Such policy analysis is invariably complicated by the fact that there are multiple motivations for the use of prescribed burning, both to improve resources and/or to reduce fire hazard. Of particular importance is the reality that prescriptions reducing fire hazard may not always enhance resource values and sometimes may detract. Thus there is great potential for disagreement over the appropriate fire management policy.

Management Implications:

- Wildfires in shrublands of southern and central coastal California are frequent enough to preclude the use of prescription burning for resource benefits, and thus fire hazard reduction is the only justification for prescription burning in this vegetation type.
- Prescription burning in these crown fire ecosystems carries with it certain problems not shared by the use of prescribed burning in forests with surface fire regimes.
- Prescription burning is effective at controlling fires that burn under moderate weather conditions and ineffective at controlling fires that ignite under severe weather conditions.
- Strategic placement of prescription burning is more important than the total acreage burned.

In California shrublands there is no evidence that prescribed burning provides any resource benefit, and in some areas it may negatively impact shrublands by increasing fire frequency beyond the ability to recover. Therefore, fire hazard reduction is the primary justification for prescription burning. But there are problems with prescription burning in these crown-fire ecosystems that are not shared by forests with a natural surface-fire regime. In forests, understory burning of surface fuels at short intervals has been reasonably successful at reducing fire hazard. However, burning in shrublands always involves crown fires, and prescription weather conditions generally will not carry fire until the vegetation is more than a couple decades old. This presents a problem because these long rotation intervals are insufficient to affect the spread of wildfires ignited under severe weather conditions. Fire management should focus on strategic placement of prescription burns both to insure the most efficient fire hazard reduction and to minimize the amount of landscape exposed to unnaturally high fire frequency. A major contributor to increased fire suppression costs and increased loss of property and lives is the continued urban sprawl into wildlands naturally subjected to high-intensity crown fires.

Differences in shrubland fire history suggest there may be a need for different fire management tactics between central coastal and southern California. Much less is known about shrubland fire history in the Sierra Nevada foothills and interior North Coast Ranges, and thus it would be prudent to not transfer tactics too broadly across the range of chaparral until the extent of regional variation in shrubland fire regimes is more clearly understood.

Keeley, J. E. 2002. Fire management of California shrubland landscapes. Environmental Management 29:395–408.